REMARKS

This amendment is submitted in Response to the outstanding Office Action dated April 15, 2009.

To summarize, Claim 11 is cancelled herein, Claims 7 and 10 are amended and Claim 12 is newly added. Claim 10 is amended solely for clarification purposes. Further, the abstract has been amended in order to correct grammatical and idiomatic errors contained therein. In addition, the specification has been amended in order to include proper headings.

Claims 7-11 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Chaplinsky, U.S. Patent No. 5 135 174 in view of Bahr, U.S. Patent No. 7 066 186.

Claim 7 is directed to sprayer for spraying liquids, having a carrier liquid tank, a carrier liquid pump, several spraying nozzles, at least one active ingredient tank and at least one metering pump connectable by at least one active ingredient supply line to the active ingredient tank, a compressed air connection on the active ingredient supply line remote from the active ingredient tank arranged so that during return operation, active ingredient can be forced by compressed air from the active ingredient supply line back into the active ingredient tank, and a vacuum connection on the active ingredient supply line remote from the active ingredient tank arranged so that during forward feed operation, active ingredient can be fed by a vacuum from the active ingredient tank into the active ingredient supply line and to the nozzles.

Chaplinsky teaches an automatic feeding system for applying multiple plant nutrients stored in tanks 1-4. Tanks 1-4 are connected to respective conduits 9-12 to supply liquid nutrient to the input of individual metering pumps 5-8, and pumps 5-8 are connected to output conduits 13-16 to carry the liquid nutrient under high pressure to a main irrigation line P. As the Examiner acknowledges, Chaplinsky does not teach a compressed air connection on the active ingredient

supply line remote from the active ingredient tank arranged so that during return operation, active ingredient can be forced by compressed air from the active ingredient supply line back into the active ingredient tank, as recited in Claim 7, and cites Bahr so as to allegedly cure this deficiency.

Bahr teaches a method and apparatus to clean a paint feed-line of a painting system. Bahr discloses a tank 2 connected by a recirculation line, including a forward conduit 6 and a return conduit 7, to a color-changing or paint-changing unit 8. The Examiner appears to be equating this recirculation mechanism in Bahr with the compressed air connection and return operation recited in Claim 7 which effectively forces active ingredient from the active ingredient supply line back into the active ingredient tank. However, the Examiner has not specifically pointed out such a "compressed air connection" in Bahr, and as understood, no such connection is believed taught in Bahr. Thus, while paint may be moved back into tank 2 via return line 7 or back into tank 9 via return line 11, there is no teaching in Bahr of achieving this via a compressed air connection as required in Claim 7. In this regard, it would appear that Bahr teaches away from using compressed air in association with cleaning feed lines since doing so can result in the formation of clumps in the paint (see column 1, lines 40-52, and column 2, lines 13-16). While this discussion in Bahr pertains to cleaning feed lines, it is submitted that Bahr would also not want to use a compressed air connection in the recirculation mechanism discussed above.

Bahr also discloses in column 4, lines 24-47 a cleaning stage for the feed line 1 if painting is to be switched to the paint of the tank 9. In this regard, inert gas from an inert gas source 28 forces the minute quantity of paint still in front of the column of inert gas into the collecting container 43 through the end 1a of the feed line 1. While this cleaning stage of Bahr forces the paint towards tank 2, the paint is actually deposited in collecting container 43 rather than

tank 2. Thus, even if this cleaning mechanism is considered to correspond to the return operation recited in Claim 7, Bahr's cleaning stage functions differently from the return operation recited in Claim 7, since Bahr does not force paint back into tank 2 (ostensibly corresponding to the "active ingredient tank" of Claim 7), but instead into collecting container 43. Further, Bahr specifically teaches away from using compressed air to clean the feed line as discussed above, and instead utilizes an inert gas which will not react with the paint.

Further, neither Chaplinsky nor Bahr disclose a vacuum connection on the active ingredient supply line remote from the active ingredient tank arranged so that during forward feed operation, active ingredient can be fed by a vacuum from the active ingredient tank into the active ingredient supply line and to the nozzles, as now recited in Claim 7. This feature recited in Claim 7 allows for a very economical spraying operation, since active ingredient is present at the nozzles immediately at the start of the spraying action. There is no such teaching in Chaplinsky to provide such a vacuum connection so that during forward feed of any of the ingredients in tanks 1-4, ingredient can be fed by a vacuum from the corresponding tank into line P and to the sprinklers at the greens 21, tees 22 and fairways 23.

With respect to Bahr, the feed line 1 simply connects at a first end 1a to a paint tank 2 and at a second end 1b connects to a depositing device 3 to set up flow communication. There is no teaching in Bahr to provide a vacuum connection so that during forward feed of paint in tank 2 or tank 9, paint can be fed by a vacuum from the corresponding tank into feed line 1 and to the depositing device 3. In this regard, Bahr teaches at column 4, lines 9-24 that one of valves 12, 14 is opened after selection of the desired paint. Assuming that valve 12 is opened, paint flows from tank 2 at the rate set by pressure regulator 18 and metering pump 19 to deposition device 3. As a result,

device 3 is conventionally driven by manually opening or closing its output nozzle (spray gun 4). Thus, it would appear that the user would have to wait until the paint has traveled all of the distance between tank 2 and the output nozzle of device 3. Further, as described in column 5, lines 35-49 of Bahr, when valve 14 is opened at the beginning of the next operational stage, nozzle (spray gun 4) is reopened and the new paint first expels the inert gas column present in feed line 1. The sensor 46 signaling the inflow of paint determines the lead time, determined by the length of the feed line 1, preceding the actual painting operation if necessary to avoid spraying inert gas on the workpiece surface. Bahr mentions that no harm will arise if nozzle/spray gun 4 is pointed at the workpiece directly after paint has been released through valve 14 since inert gas is utilized, and that some inert gas initially will reach the workpiece. The above passages in Bahr, as understood, indicate that a spraying operation at nozzle/spray gun 4 is necessary before the actual paint application starts in order to fill the feed line 1 with paint. Therefore, time delay is inevitable while the paint reaches the nozzle from tank 2 or 9.

As described in column 1, lines 8-23, Bahr's device is for spraying paint used in automobile production. Spraying paint in a production line is typically carried out in a special environment, and the time delay for the paint to reach the spraying nozzle is not critical. On the other hand, the active ingredient of the present invention is present at the nozzles immediately at the beginning of the spraying action due to the vacuum connection. In agricultural spraying, poisonous substances are often utilized. Thus, it is critical in agricultural spraying that active ingredient is used only for the actual spraying operation rather than simply dropped onto the ground or on plants, because contamination or excessive application of the active ingredient can happen. Therefore, the vacuum connection recited in Claim 7 allows for a more controlled and precise spraying operation.

In view of the above, Claim 7 is believed to be patentably distinguishable over Chaplinsky and Bahr, alone or in combination with one another.

Claims 8-10 and new Claim 12 depend upon what is believed to be allowable Claim 7, are believed allowable therewith, and include additional features which further distinguish over Chaplinsky and Bahr. Claim 11 has been cancelled, rendering the rejection thereagainst moot.

For example, Claim 8 recites several nozzle holders with metering pumps connected in series to the active ingredient supply line, wherein the compressed air connection is provided downstream of a final metering pump in the active ingredient supply direction. Claim 9 recites several nozzle holders arranged in respective partial widths and with each partial width is associated a partial width active ingredient supply line, with in each case one compressed air connection. Although Chaplinsky teaches sprinklers located at areas 21-23 and Bahr teaches the nozzle/spray gun 4, Chaplinsky and Bahr do not disclose the nozzle holders as defined in Claims 8 and 9.

Claim 10 recites that each of the nozzle holders includes a mixing chamber. Chaplinsky and Bahr do not teach the nozzle holders, let alone mention the mixing chamber.

New Claim 12 recites a float valve connected to the final metering pump. Neither Chaplinsky nor Bahr teach such a float valve.

In view of the above, the instant application is believed to be in condition for allowance, and action toward that end is respectfully requested.

Respectfully submitted,

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